

Claims

1. A communications system, which comprises a multiplicity of mobile devices (1, 91'), to which an identification module (12) is connected in each case, in which identification modules (12) a user identification (123) of the user of the respective said mobile device (1) is stored in each case, which
 5 communications system comprises at least one visitor location register (5), to which visitor location register (5) said user identifications (123) of said users are transmitted by means of a said mobile device (1) and are stored there, and which communications system comprises at least one home location register
 10 (6), in which said user identifications are each linked to a call number and to further user data, which user data comprise location information for a respective said user, said location information being transmitted from a said visitor location register (5) to the home location register (6) of a said user, wherein

15 it comprises connecting modules (2, 2') by means of which at least certain said mobile devices (1) are able to be connected to a power supply network (4),

said connecting modules (2, 2') each comprise a suitable power line communications module (21), by means of which said at least certain mobile
 20 devices (1) are able to communicate, via a said power supply network (4), with other units (5) which are connected to a said power supply network (4) via a power line communications module (51).

2. The communications system according to the preceding claim, wherein it comprises at least one visitor location register (5) which is connected
 25 to at least one said power supply network (4) via a said power line communications module (51), and

wherein said user identifications (123) are transmitted by said at least certain mobile devices (1) via the said power supply network (4) to this power supply network visitor location register (5).

30 3. The communications system according to the preceding claim, wherein a said power supply network visitor location register (5) comprises a table (54) in which address data relating to said connecting modules (2, 2') are linked to associated said user identifications and are stored.

4. The communications system according to the preceding claim, wherein a said power supply network visitor location register (5) transmits to the said home location register (6, 6') of a said user a roaming number relating to the said mobile device (1) of this said user, and wherein said roaming
5 numbers are additionally linked in the said table (54) with associated said user identifications and are stored.

5. The communications system according to the preceding claim, wherein at least certain of the said roaming numbers comprise address data relating to a said connecting module (2, 2').

10 6. The communications system according to one of the preceding claims, wherein at least certain pieces of the said location information comprise address data relating to the said power supply network visitor location register (5).

7. The communications system according to one of the preceding claims,
15 wherein the communications system comprises a connecting network (8) via which a said power supply network visitor location register (5) is able to communicate with at least one said home location register (6) and/or at least one mobile switching center (7).

8. The communications system according to the preceding claim,
20 wherein the said connecting network (8) comprises a SS7 signalling system.

9. The communications system according to claim 7, wherein the said connecting network (8) is the Internet or an intranet.

10. The communications system according to one of the claims 7 to 9, wherein the said at least one power supply network visitor location register (5)
25 is able to communicate, by means of MAP messages, with other network units (6, 6', 7) connected to the said connecting network (8).

11. The communications system according to one of the claims 7 to 10, wherein the said at least one power supply network visitor location register (5) comprises a gateway module (53), which gateway module (53) is able to pass
30 on calls from terminals to respective said at least certain mobile devices (1), which calls have been passed on via the said connecting network (8) to the said power supply network visitor location register (5), and which gateway module (53) is able to pass on calls from said at least certain mobile devices

(1) via the said connecting network (8) to a respective network unit, in particular a second said power supply network visitor location register, for further transmission to a called terminal.

12. The communications system according to one of the preceding
5 claims, wherein the said at least one power supply network visitor location register (5) comprises a gateway module (53), which gateway module (53) is able to pass on calls from terminals (91, 91') to respective said at least certain mobile devices (1), which calls have been received from a mobile switching center (7) and have been passed on to the said at least one power supply
10 network visitor location register (5), and which gateway module (53) is able to pass on to a respective said mobile switching center (7) calls from said at least certain mobile devices (1) for further transmission to a called terminal (91, 91').

13. The communications system according to one of the preceding claims, wherein a said at least one power supply network visitor location
15 register (5) comprises a billing module (52) which is able to record and bill for services that have been carried out for a respective said at least certain mobile device (1).

14. The communications system according to the preceding claim, wherein the said billing module (52) is able to bill recorded services to a
20 respective said at least certain mobile device (1) directly via the said power supply network (4).

15. The communications system according to one of the preceding claims, wherein the said connecting modules (2, 2') comprise an interface with contacts via which they are able to be connected to said at least certain mobile
25 devices (1).

16. The communications system according to one of the preceding claims, wherein the said connecting modules (2, 2') comprise a contactless interface via which they are able to be connected to said at least certain mobile devices (1).

17. The communications system according to the preceding claim, wherein at least certain said contactless interfaces are infrared interfaces.

18. The communications system according to one of the claims 16 or 17, wherein at least certain said contactless interfaces are inductive interfaces.

19. The communications system according to one of the claims 16 to 18, wherein at least certain said contactless interfaces are high frequency radio interfaces.

20. The communications system according to one of the preceding
5 claims, wherein the said connecting modules (2,2') comprise charging modules by means of which energy storage devices for operation of the said mobile devices (1) are able to be charged on the said power supply network (4).

21. The communications system according to one of the preceding claims, wherein the said power supply network (4) is a low voltage grid (41).

10 22. A communications method in which user identifications (123) of users of a multiplicity of mobile devices (1, 91') are each stored in an identification module (12), which identification modules (12) are connected to said mobile devices (1, 91), in which communications method said user
15 identifications (123) of said users are transmitted by means of a said mobile device (1) to a visitor location register (5) and are stored there, and in which communications method said user identifications are each linked to a call number and to further user data and are stored in a home location register (6), said user data comprising location information for a respective said user, and said location information being transmitted from a said visitor location register
20 (5) to the home location register (6) of a said user, wherein

at least certain said mobile devices (1) are connected to a power supply network (4) by means of a connecting module (2),

said connecting modules (2) each comprise a suitable power line
communications module (21), by means of which said at least certain mobile
25 devices (1) communicate, via a said power supply network (4), with other units (5) which are connected to a said power supply network (4) via a power line communications module (51).

23. The communications method according to the preceding claim, wherein at least one visitor location register (5) is connected to at least one
30 said power supply network (4) via a said power line communications module (51), and

said user identifications (123) of said at least certain mobile devices (1) are transmitted to this power supply network visitor location register (5) via the said power supply network (4).

24. The communications method according to one of the claims 22 or 23,
5 wherein address data relating to connecting modules (2, 2') are linked with associated said user identifications and are stored in a table (54) of a said power supply network visitor location register (5).

25. The communications method according to the preceding claim,
10 wherein a said power supply network visitor location register (5) transmits to the said home location register (6, 6') of a said user a roaming number relating to the said mobile device (1) of this said user, and wherein said roaming numbers are additionally linked in the said table (54) with associated said user identifications and are stored.

26. The communications method according to the preceding claim,
15 wherein at least certain of the said roaming numbers comprise address data relating to a said connecting module (2, 2').

27. The communications method according to one of the claims 22 to 26,
20 wherein at least certain pieces of the said location information comprise address data relating to a said power supply network visitor location register (5).

28. The communications method according to one of the claims 22 to 27,
wherein a said power supply network visitor location register (5) communicates, via a connecting network (8), with at least one said home location register (6) and/or at least one mobile switching center (7).

25 29. The communications method according to the preceding claim, wherein the said connecting network (8) comprises a SS7 signalling system.

30. The communications method according to claim 28, wherein the said connecting network (8) is the Internet or an Intranet.

31. The communications method according to one of the claims 28 to 30,
30 wherein the said at least one power supply network visitor location register (5) communicates by means of MAP messages with other network units (6, 6', 7) connected to the said connecting network (8).

32. The communications method according to one of the claims 28 to 31, wherein the said at least one power supply network visitor location register (5) passes on calls from terminals, by means of a gateway module (53) to respective said at least certain mobile devices (1), which calls have been
5 passed on via the said connecting network (8) to the said at least one power supply network visitor location register (5), and wherein the said at least one power supply network visitor location register (5) passes on, by means of this gateway module (53), calls from said at least certain mobile devices (1) via the said connecting network (8) to a respective network unit, in particular a second
10 said power supply network visitor location register, for further transmission to a called terminal.

33. The communications method according to one of the claims 22 to 32, wherein the said at least one power supply network visitor location register (5) passes on, to respective said at least certain mobile devices (1), by means of a
15 gateway module (53), calls, which have been received by a mobile switching center (7) from calling terminals (91, 91') and have been passed on to the said at least one power supply network visitor location register (5), or respectively passes on to a respective said mobile switching center (7), by means of this gateway module (53), calls from said at least certain mobile devices (1) for
20 further transmission to a called terminal (91, 91').

34. The communications method according to one of the claims 22 to 33, wherein a said power supply network visitor location register (5) is able to record and bill for services, which have been carried out for a respective said at least certain mobile device (1), by means of a billing module (52).

25 35. The communications method according to one of the claims 22 to 34, wherein the said billing module (52) is able to bill recorded services to a respective said at least certain mobile device (1) directly via the said power supply network (4).

36. The communications method according to one of the claims 22 to 35,
30 wherein the said connecting modules (2, 2') are connected to said at least certain mobile devices (1) via an interface with contacts.

37. The communications method according to one of the claims 22 to 36, wherein the connecting modules (2, 2') are connected to said at least certain mobile devices (1) via a contactless interface.

38. The communications method according to the preceding claim, wherein at least certain said contactless interfaces are infrared interfaces.

39. The communications method according to one of the claims 37 to 38, wherein at least certain said contactless interfaces are inductive interfaces.

5 40. The communications method according to one of the claims 37 to 39, wherein at least certain said contactless interfaces are high frequency radio interfaces.

41. The communications method according to one of the claims 22 to 40, wherein, by means of charging modules, said connecting modules (2, 2') charge on the said power supply network (4) energy storage devices for operation of the said mobile devices (1).

42. The communications method according to one of the claims 22 to 41, wherein the said power supply network (4) is a low voltage grid (41).

43. A connecting module (2, 2') for a communications system according to claims 1 to 21, which connecting module (2, 2') is able to be connected to at least certain mobile devices (1) via an interface, wherein

it is able to be connected to a power supply network (4), and

it comprises a suitable power line communications module (21), by means of which said at least certain mobile devices (1) are able to communicate, via the said power supply network (4), with other units which are connected to a said power supply network (4) via a power line communications module (51).

44. The connecting module (2, 2') according to the preceding claim, wherein it has stored address data by means of which it is able to be addressed in the said power supply network (4).

45. The connecting module (2, 2') according to one of the claims 43 or 44, wherein it comprises an interface with contacts via which it is able to be connected to said at least certain mobile devices (1).

46. The connecting module (2, 2') according to one of the claims 43 to 45, wherein it comprises a contactless interface via which it is able to be connected to said at least certain mobile devices (1).

47. The connecting module (2, 2') according to the preceding claim, wherein the said contactless interface is an infrared interface.

48. The connecting module (2, 2') according to one of the claims 46 or 47, wherein the said contactless interface is an inductive interface.

5 49. The connecting module (2, 2') according to one of the claims 46 to 48, wherein the said contactless interface is a high frequency radio interface.

50. The connecting module (2, 2') according to one of the claims 43 to 49, wherein it comprises a charging module by means of which an energy storage device for operation of a said mobile device (1) can be charged on the
10 said power supply network (4).

51. The connecting module (2, 2') according to one of the claims 43 to 50, wherein the said power supply network (4) is a low voltage grid (41).

52. The connecting module according to one of the claims 43 to 50, wherein said at least certain mobile devices (1) each comprise a mobile radio
15 telephone.

53. A visitor location register (5) for a communications system according to the claims 1 to 21, to which visitor location register (5) user identifications of users are transmitted by means of a mobile device (1) and are stored there, and which visitor location register (5) passes on location information for a said
20 user to his home location register (6), wherein

the visitor location register (5) comprises a power line communications module (51), by means of which it is able to be connected to at least one power supply network (4), and

said user identifications from at least certain mobile devices (1), which
25 are connected to a said power supply network via connecting modules (2, 2'), are received by the visitor location register (5) via a said power supply network (4).

54. The visitor location register (5) according to the preceding claim, wherein it comprises a table (54) in which address data relating to said
30 connecting modules (2, 2') are linked with associated said user identifications and are stored.

55. The visitor location register (5) according to the preceding claim, wherein it (5) transmits to the home location register (6, 6') of a said user a roaming number relating to the said mobile device (1) of this said user, and wherein said roaming numbers are additionally linked in the said table (54) with associated said user identifications and are stored.

56. The visitor location register (5) according to the preceding claim, wherein at least certain of the said roaming numbers comprise address data relating to a said connecting module (2, 2').

57. The visitor location register (5) according to one of the claims 53 to 56, wherein it is able to communicate, via a connecting network (8), with at least one said home location register (6) and/or at least one mobile switching center (7).

58. The visitor location register (5) according to the preceding claim, wherein the said connecting network (8) comprises a SS7 signalling system.

59. The visitor location register (5) according to claim 57, wherein the said connecting network (8) is the Internet or an intranet.

60. The visitor location register (5) according to one of the claims 57 to 59, wherein the visitor location register (5) is able to communicate by means of MAP messages with other network units (6, 6', 7) which are connected to the said connecting network (8).

61. The visitor location register (5) according to one of the claims 57 to 60, wherein it comprises a gateway module (53), which gateway module (53) is able to receive calls from terminals, which calls have been passed on to the visitor location register (5) via the said connecting network (8), and is able to pass them on to respective said at least certain mobile devices (1), and which gateway module (53) is able to pass on calls from said at least certain mobile devices (1) via the said connecting network (8) to a respective network unit, in particular a second said visitor location register, for further transmission to a called terminal.

62. The visitor location register (5) according to one of the claims 53 to 61, wherein it comprises a gateway module (53), which is able to pass on calls to respective said at least certain mobile devices (1) that have been received by a mobile switching center (7) from calling terminals (91, 91') and have been

passed on to the visitor location register (5), or respectively is able to pass on to a respective mobile switching center (7) calls from said at least certain mobile devices (1) for further transmission to a called terminal (91, 91').

5 63. The visitor location register (5) according to one of the claims 53 to 62, wherein it comprises a billing module (52) which is able to record and bill for services that have been carried out for a respective said at least certain mobile device (1).

64. The visitor location register (5) according to the preceding claim, wherein the said billing module (52) is able to bill recorded services to a
10 respective said at least certain mobile device (1) directly via the said power supply network (4).

65. The visitor location register (5) according to one of the claims 53 to 64, wherein the said power supply network (4) is a low voltage grid (41).